

AMENDMENT TO THE CLAIMS

The following is a detailed listing of all claims that are, or were, in the Application.

1-29. (Canceled)

30. (Currently Amended) An apparatus for processing multimedia data, the apparatus comprising:

a memory; and

a processor configured to perform operations comprising:

receiving segment information about an audio-visual program, the segment information including segment location information identifying a plurality of audio-visual segments in the audio-visual program, wherein the segment location information defines each audio-visual segment is defined by a temporal position in a multimedia stream of the audio-visual program and wherein each audio-visual segment represents a continuous temporal content portion in the audio-visual program;

generating a hierarchical data structure configured to facilitate browsing content in the audio-visual program, the hierarchical data structure including a first structural part which stores the segment information along with and a distinct second structural part which stores segment group information defining first and second segment groups for the audio-visual program, each of the first and second segment groups defining a respective set of non-contiguous audio-visual segments which are selected from the plurality of audio-visual segments and identified in the segment group information by references to the corresponding segments in the segment information in the multimedia stream of the audio-visual program, wherein said segment group information specifies a respective group type and a respective duration for each of said first and second segment groups, the respective group types indicating that the first and second segment groups represent respective first and second content summaries related to objects or events as depicted in the audio-visual program, and wherein the segment group information includes segment order information defining that (i) the audio-visual segments within the first segment group are ordered relative

to each other according to a time sequence that is significant for the first content summary's representation of the corresponding events or objects in the audio-visual program and (ii) the audio-visual segments within the second segment group are not ordered relative to each other according to any time sequence that is significant for the second content summary's representation of the corresponding events or objects in the audio-visual program; and
storing the hierarchical data structure including the segment information along with and the segment group information in the memory.

31. (Previously presented) The apparatus of claim 30, wherein said segment group information includes a level information.

32. (Previously presented) The apparatus of claim 31, wherein said level information defines multiple levels.

33. (Currently amended) The apparatus of claim 30, wherein said segment location information defines each audio-visual segment contained in the first and second segment groups is-defined by a respective start time and a respective segment duration.

34. (Currently amended) A method implemented by an apparatus for processing multimedia data, the method comprising:

generating segment information about an audio-visual program as a first structural part of a hierarchical data structure configured to facilitate browsing content in the audio-visual program, the segment information including segment location information identifying a plurality of audio-visual segments in the audio-visual program, wherein the segment location information defines each audio-visual segment is-defined by a temporal position in a multimedia stream of the audio-visual program and wherein each audio-visual segment represents a continuous temporal content portion in the audio-visual program;

generating segment group information as a distinct second structural part of the ~~for a~~ hierarchical data structure configured to facilitate browsing content in the audio-visual program; and

transmitting said segment information and said segment group information to a client, wherein said segment group information:

defines first and second segment groups for the audio-visual program, each of which defines a respective set of non-contiguous audio-visual segments which are selected from the plurality of audio-visual segments and identified in the segment group information by references to the corresponding segments in the segment information in the multimedia stream of the audio-visual program;

specifies a respective group type and a respective duration for each of said first and second segment groups, the respective group types indicating that the first and second segment groups represent respective first and second content summaries related to objects or events as depicted in the audio-visual program; and

includes segment order information defining that (i) the audio-visual segments within the first segment group are ordered relative to each other according to a time sequence that is significant for the first content summary's representation of the corresponding events or objects in the audio-visual program and (ii) the audio-visual segments within the second segment group are not ordered relative to each other according to any time sequence that is significant for the second content summary's representation of the corresponding events or objects in the audio-visual program.

35. (Previously presented) The method of claim 34, wherein said segment group information includes a level information.

36. (Previously presented) The method of claim 35, wherein said level information defines multiple levels.

37. (Currently amended) The method of claim 34, wherein the segment ~~group location~~ information defines a respective start time and a respective segment duration for each audio-visual segment contained in the first and second segment groups.

38. (Currently amended) An apparatus for processing multimedia data, the apparatus comprising:

a memory; and

a processor configured to perform operations comprising:

receiving segment information about an audio-visual program, the segment information including segment location information identifying a plurality of audio-visual segments in the audio-visual program, wherein segment location information defines each audio-visual segment ~~is defined~~ by a temporal position in a multimedia stream of the audio-visual program and wherein each audio-visual segments represents a continuous temporal content portion in the audio-visual program;

receiving segment group information defining first and second segment groups for the audio-visual program:

generating [[in]] a hierarchical data structure configured to facilitate browsing content in the audio-visual program, the hierarchical data structure including a first structural part which stores the received segment information and a distinct second structural part which stores the segment group information, wherein each of the first and second segment groups defining define a respective set of non-contiguous audio-visual segments which are selected from the plurality of audio-visual segments and identified in the segment group information by references to the corresponding segments in the segment information in the multimedia stream of the audio-visual program, wherein said segment group information specifies a respective group type and a respective duration for each of said first and second segment groups, the respective group types indicating that the first and second segment groups represent respective first and second content summaries related to objects or events as depicted in the audio-visual program, and wherein the segment group information includes segment order information defining that (i) the audio-visual segments within the first

segment group are ordered relative to each other according to a time sequence that is significant for the first content summary's representation of the corresponding events or objects in the audio-visual program and (ii) the audio-visual segments within the second segment group are not ordered relative to each other according to any time sequence that is significant for the second content summary's representation of the corresponding events or objects in the audio-visual program; and

storing the hierarchical data structure including the segment information along with and the segment group information in the memory.

39. (Previously presented) The apparatus of claim 38, wherein said segment group information includes a level information.

40. (Previously presented) The apparatus of claim 39, wherein said level information defines multiple levels.

41. (Currently amended) The apparatus of claim 38, wherein the segment location information defines each audio-visual segment contained in the first and second segment groups ~~is defined~~ by a respective start time and a respective segment duration.

42. (Currently amended) A method implemented by an apparatus for processing multimedia data, the method comprising:

receiving segment information about an audio-visual program, the segment information including segment location information identifying a plurality of audio-visual segments in the audio-visual program, wherein the segment location information defines each audio-visual segment ~~is defined~~ by a temporal position in a multimedia stream of the audio-visual program and wherein each audio-visual segment represents a continuous temporal content portion in the audio-visual program;

receiving segment group information from a provider; and
storing said received segment information and said segment group information in
distinct first and second structural parts of a hierarchical data structure configured to
facilitate browsing content in the audio-visual program in a client, wherein said segment
group information:

defines first and second segment groups for the audio-visual program, each of
which defines a respective set of non-contiguous audio-visual segments that are selected
from the plurality of audio-visual segments and identified in the segment group information
by references to the corresponding segments in the segment information in the multimedia
stream of the audio-visual program;

specifies a respective group type and a respective duration for each of said
first and second segment groups, the respective group types indicating that the first and
second segment groups represent respective first and second content summaries related to
objects or events as depicted in the audio-visual program; and

includes segment order information defining that (i) the audio-visual segments
within the first segment group are ordered relative to each other according to a time sequence
that is significant for the first content summary's representation of the corresponding events
or objects in the audio-visual program and (ii) the audio-visual segments within the second
segment group are not ordered relative to each other according to any time sequence that is
significant for the second content summary's representation of the corresponding events or
objects in the audio-visual program.

43. (Previously presented) The method of claim 42, wherein said segment group
information includes a level information.

44. (Previously presented) The method of claim 43, wherein said level
information defines multiple levels.

45. (Currently amended) The method of claim 42, wherein the segment location information defines each audio-visual segment contained in the first and second segment groups ~~is defined~~ by a respective start time and a respective segment duration.

46. (Currently amended) A storage medium storing a hierarchical data structure configured to be processed by multimedia data processing apparatus to facilitate browsing content in an audio-visual program, the stored hierarchical data structure comprising:

a first structural part which stores segment information about the audio-visual program, the segment information including segment location information identifying a plurality of audio-visual segments in the audio-visual program, wherein the segment location information defines each audio-visual segment ~~is defined~~ by a temporal position in a multimedia stream of the audio-visual program and wherein each audio-visual segment represents a continuous temporal content portion in the audio-visual program;

a distinct second structural part which stores segment group information defining first and second segment groups for the audio-visual program, each of which defines a respective set of non-contiguous audio-visual segments that are selected from the plurality of audio-visual segments and identified in the segment group information by references to the corresponding segments in the segment information in the multimedia stream of the audio-visual program, wherein said segment group information specifies a respective group type and a respective duration for each of said first and second segment groups, the respective group types indicating that the first and second segment groups represent respective first and second content summaries related to objects or events as depicted in the audio-visual program, and wherein the segment group information includes segment order information defining that (i) the audio-visual segments within the first segment group are ordered relative to each other according to a time sequence that is significant for the first content summary's representation of the corresponding events or objects in the audio-visual program and (ii) the audio-visual segments within the second segment group are not ordered relative to each other according to any time sequence that is significant for the second content summary's representation of the corresponding events or objects in the audio-visual program.

47. (Previously presented) The storage medium of claim 46, wherein said segment group information includes a level information.

48. (Previously presented) The storage medium of claim 47, wherein said level information defines multiple levels.

49. (Currently amended) The storage medium of claim 46, wherein the segment group location information defines a respective start time and a respective segment duration for each audio-visual segment contained in the first and second segment groups.

50-53. (Cancelled)

54. (Previously presented) The apparatus of claim 30, wherein the respective group types for the first and second segment groups specify that the first and second segment groups are related to at least two characters represented in the content of the multimedia stream.

55. (Previously presented) The apparatus of claim 54, wherein the first segment group includes audio-visual segments representing time ordered relation changes between the at least two characters.

56. (Previously presented) The apparatus of claim 30, wherein the segment group information indicates that the first segment group includes audio-visual segments that represent highlights from the multimedia stream.

57. (Previously presented) The apparatus of claim 54, wherein the audio-visual

segments within the second segment group include audio-visual segments representing constant relations between the at least two characters.